ITEMS OF INTEREST.

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Shots from the Profession.

PROCEEDINGS OF THE PENNSYLVANIA STATE DENTAL SOCIETY, 1886.

[Reported for the Items by DR. WM. H. TRUEMAN.]

The Eighteenth Annual Meeting of the Pennsylvania State Dental Society convened at the Mountain House, Cresson, on Tuesday, July 27th, 1886, and was called to order by the President, Dr. J. W. Rhone, of Bellefonte.

The morning session was occupied by routine business.

At the opening of the afternoon session

THE PRESIDENT'S ADDRESS

was read, which was somewhat of a new departure; in place of the usual platitudes of such addresses, the Dr. gave a brief and concise resumé of various business matters originating or referred to at the last session, and requiring farther attention at this. The good effect of his judicious suggestions, in the prompt and orderly transaction of business, was seen throughout the entire session.

Dr. E. H. Neal, of Philadelphia, read a paper entitled:

"A REVIEW OF THE CAUSE OF THE DECLINE OF MECHANICAL DENTISTRY."

He remarked:—Looking over the pages of our Dental Journals one would be led to suppose that Mechanical Dentistry was fast becoming a thing of the past; indeed so little has been written on it, and so seldom is it referred to in our Society meetings, that it seems to have ceased to be of special interest to many practicing dentists.

Quite recently, however, considerable interest has been manifested in it by the introduction of Bridge-work. This he considered a step in the right direction, though, it is perhaps, too early to speak decidedly as to its merits. While there is much in it to commend, it is not without faults; it is frequently spoken of as unclean and opposed

to sound mechanical principles; it is also contended that the severe strain imposed on a few teeth will soon dislodge them.

He contrasted the dental laboratory of thirty years ago with that of to-day: then its secrets were carefully guarded, and its receits and processes either brought a high price, or were communicated under pledge of secrecy. Then the preservation of natural teeth received far less attention, and the insertion of substitutes was a far more prominent feature of dental practice than now. The teeth were usually carved to suit each case, the dentist not only carving the teeth he inserted, but also preparing the body, enamel, etc., from the crude materials. He exhibited a number of specimens of his own and his father's handy-work, all made more than thirty years ago, and all excellent specimens of that class of work, rivaling in appearance and expression the best that is now being produced. He described the method of making the old style riveted blocks, and thought in skilled hands that antiquated method was capable of better results in expression and usefulness than is usually obtained with molded teeth. They had an individuality that is so often lacking in artificial dentures of more recent date. He referred to the time required to become a skilled carver of teeth, and the constant care required at each stage of the process; of the difficulties to be met and surmounted, and the constant liability to accidents requiring hours of labor to repair. He regretted that block carving was not more thoroughly taught in the dental colleges, to produce satisfactory results, so many cases require the teeth to be specially carved to suit them; and as so few are capable of making hand carved blocks they are less frequently used than they should be.

He suggested that the introduction of easier methods had developed a carelessness and indifference to the minuter details of constructing dentures, and had in a measure passed that department of our specialty into the hands of those who did not appreciate the varied conditions to be met; but regardless of the anatomy of the mouth, its varied pathological conditions, or the peculiarities of the patient used teeth of the same mold, size and color for all cases.

He then referred to the constantly increasing attention given to the preservation of natural teeth, this has not only materially reduced the necessity for substitutes, but has also to a very great extent withdrawn talent and skill from the laboratory, leaving that department in far inferior hands; the easier methods of the present having failed to develop the same skill as did the severe training of the past.

In conclusion, he suggested the following causes for the decline of Mechanical Dentistry:

First—The efforts of dentists, and the knowledge diffused by

numerous publications on the subject, have directed public attention to the importance of preserving natural teeth.

Second—The vast improvements in materials and implements have rendered operations looking to the preservation of the natural teeth more useful and reliable; for this the thanks of the patients and operator are justly due to inventors and manufacturers who have so well supplied our needs.

Third—The ease and comparative freedom from pain with which dental operations are now performed.

DISCUSSION.

Dr. Beck, referring to his early experience, spoke of the many accidents liable to occur in carving blocks, such as gasing the gums; that is, the gas given off from the fuel used in baking them passing into the muffle, changing the color of the enamel to a dark blue or deep purple. When the blocks were made the difficulty was not over; riveting the blocks to the plate involved considerable risk. With the essayist, he thought the only way to construct a denture was to make them for the individual, carving and coloring the teeth to suit each case.

Dr. J. C. Green referred to Dr. Foster, of Trenton, N. J., the Wardell Brothers, Drs. Hall, and Neal (father of the essayist), of Philadelphia, as men who had many years ago a reputation as skilful block carvers. No one now can appreciate the difficulties dentist then labored under. Now, everything is prepared ready for use and professional secrets are unknown; then, the dentist had to prepare everything himself, and to puzzle out, unaided, as best he might, the many difficulties he encountered. He referred to Dr. Wildman's patient and successful investigations looking to the preparation of reliable gum color, and to his giving to the profession so freely the result of his labors. He well remembered the relief it was to him when the improved gum-color was introduced. With Dr. Beck, he thought to have teeth look natural they must be carved for the individual.

Dr. Magill thought that some teeth made in Europe had a more natural and boney appearance than many made here.

Dr. Templeton referred to errors in arranging teeth that he had frequently noticed, especially that of allowing the molars to curve in, making the arch in shape somewhat like a horse-shoe. Some dentists have but one mold, inserting in every mouth, small white teeth without proper regard to individual requirements.

During the discussion the question was raised whether there had been a practical decline in the art of constructing dentures. It was frequently admitted that less labor, and perhaps less skill was now expended; but the general use of the atmospheric principle in place of clasps on the more cumbersome springs, and the improvements in

pivoting, etc., indicated a decided advance, the dentures of the present were worn with more satisfaction and comfort, than were the productions of the past.

DENTAL ANOMALIES,

by Dr. L. Campbell, was read.

The Doctor accepted Magitot's definition of an anomaly,—a deviation from a specific type, and gave to Magitot the credit of having been the first to collect and arrange convenient for study such facts as were then known relating to dental anomalies. He said: It is conceded that all defects of organism originate in embryonic peculiarities. Admitting this, we have little difficulty in recognizing the cause of many peculiarities of the dental system.

He urged the importance of carefully noting and studying the history of the many abnormal conditions met in practice. In course of years these records may prove of great scientific value. He related a number of cases of persistent dicideous teeth, of delayed dentition, and abnormal cases, where teeth missing from the arch had erupted long after the usual time, and in some cases far from the place they usually occupy.

Dr. Louis Jack, of Philadelphia, read a paper entitled

DISTINCTIONS BETWEEN THE INDICATIONS OF HYPERESTHESIA AND THOSE OF DISTURBANCES OF THE BLOOD VESSELS OF THE DENTAL PULP.

He stated, there are manifested as a consequence of the irritation set up in the tissues of the pulp, brought about by the encroachment of caries, two distinct series of symptoms; one pertaining to the nerve of the structure, the other pertaining to the state of the circulation of the pulp. These are also respectively called the *subjective* and the *objective* indications. To obtain a correct understanding of this condition the anatomical peculiarities of the organ is necessary.

First. In regard to the arrangement and ultimate distribution of the nerves. It has been clearly shown that nerves enter the foramen by several distinct fibers, which pass in an upright and parallel direction, giving off but few branches, and anastamosing but little till they reach the bulbous portion of the organ, when they form an exceedingly rich plexus, situated immediately beneath the odontoblastic layer. Thus far, observers, if we accept the unsupported claims of Boll, have not discovered nervous filaments beyond the peculiar boundary of loops formed by the ultimate terminations of the capillaries. We have to await further investigation to determin whether the ultimate distribution is only to the last limit of the blood vessels, or whether they pass between the odontoblastic processes, the remains of which, after calcification is complete, constitute the dental fibrils. The fact that

the surface of the pulp is not a highly sensitive organ to simple touch, not accompanied by pressure, may indicate that the latter distribution of the terminals is not correct, and that Boll's observations were not complete. The absence of sensation, however, is not absolute proof of the absence of nerves, many of the deeper structures are devoid of sensibility till the activity of the nerves of sensation are awakened by increased blood supply. But it is a fact of great interest in connection with the treatment of the pulp, that, normally, the organ is not quickly responsive to chemical irritation.

The afferent vessels of the dental pulp enter with the nerves and pursue a similar direct course, breaking up by branching during their passage, and at length form a capillary plexus directly over the surface of the organ. This capillary plexus has the remarkable characteristic that the ultimate capillaries do not anastamose at the plane of their ultimate distribution; one is *afferent* and the other *efferent*. This arrangement seems to be of the utmost significance, since the tendency of it is to limit the circulatory disturbance to the point of irritation, and is therefore restrictive of the diffusion of the excitement; it also tends to limit the nervous excitement of the organ, since exalted sensation and increased blood supply are corelative.

The situation of the pulp is such that it is subject to constant concussions, to thermal shocks, and when decay commences, to chemical irritation sufficient, we would infer, to excite derangement of its functions; but so far is this, in a great majority of instances of encroachment of caries on the pulp the cause of pain is not so much the altered relation or the chemical irritations as the direct application of force by which fluids are prest against the delicate tissues of which the organ is composed.

With this begins, what the Dr. terms the *subjective* stage of pulp irritation; indicated by a series of symtoms, varying in intensity and character in different individuals, the variations being no doubt caused by constitutional differences and the varying intensity of the irritation excited. With some there may be repeated attacks of neuralgic pain in some of the branches of either division of the trigeminis. It may find expression as pain in some other tooth; or a long continued frontal headake lasting for weeks and occuring at stated periods, or the pain may shift from day to day to any portion of the trigeminal sphere. These symtoms all have a tendency to recurrence in the evening, and, after they become established, tend to return each evening. This last becomes the salient means of distinguishing between a case of dental irritation and an attack of facial neuralgia caused by malarial poison, and which occurs at regular periods, but *less frequently* at night. The above does not continue long without the occurence of a marked

symtom which invariably attends the subjective stage, when the principle element involved is the nervous tissue of the organ. This is the responsiveness of the tooth to cold. This impressibility to reduced temperature is peripheral, and appears to extend throughout the whole of the enamel. It is so persistent during the subjective stage, and varies so greatly in degreee, that it may be accepted as an index of the degree of the hyperesthesia, and may be employed as a test of recovery, or of advancement toward a more serious condition.

After the subjective indications have continued for a variable time a new series of symtoms set in, and for a time are associated with the first, which have been of a reflected character.

This new phase of pulp disturbance is denominated the *objective* stage, its symtoms are manifested in the tooth itself. They usually occur,—when they do not arise, as the direct consequence of decided compression or mechanical injury,—in a sequential order. First, there is some sensation of the tooth to contact, it responds when struck with an instrument as it did not in the previous stage. This is caused by congestion of the peridental membrane. The reason for it is found in the fact that the peridental membrane near the apex derives a large portion of its circulation from the vessels as they approach the foramen; the nervous excitement induces a determination of blood which being restricted from entering by the minuteness of the foramen is distributed partly on the membrane at the apex and excites the sensibility of the nerves here, of which there is a free supply. Accompaning this condition is found an increased sensibility of the pulp, manifested at length by a heavy boring or a throbbing pain, caused by the increased determination of blood, and the plethoric condition of the vessels of the pulp. This pain is continuous, but more severe at night. At last, as the congestive condition increases, the pulp is usually devitalized as a consequence of strangulation of the tissues at the point of entrance of the vessels. Coincident with these symtoms is another which continues till approaching devitalization appears; this is the pain excited by heat, and may be regarded as the second indication of the objective stage if not concurrent with the first appearance of soreness of the investing membrane.

We have been considering a progressive case; there are many cases, where for some time there is a kind of balance carried on between these two general conditions. For a time the objective stage will be most marked, but may decline, when the subjective indications will again appear; afterward both may subside, and the pulp apparently resume its normal condition. These alternations may repeatedly occur. The distinctiveness of these two series of symtoms are of importance in reference to the treatment to be employed. When the symtoms are

subjective, and involve principally the nervous elements of the pulp, or can be kept within those bounds, conservation of the pulp may be attempted with reasonable grounds for success; but, whenever the symtoms become *objective*, and involve the circulating elements of the pulp, the prognosis becomes uncertain, and increasingly speculative as the indications of this condition advance.

Dr. Darby had listened to the paper with a great deal of interest, it was practical and timely. We all meet with cases where we are sure there is pulp irritation, but find it difficult to define where and what it is. These cases are quite difficult to treat. We do not know how long it is well to let them go on, nor yet can we always decide when it is best to cease external applications and either remove the filling or drill into the pulp. He related a case where he had felt sure devitalization would have had to be resorted to, and yet under local treatment the pain had unexpectedly ceased, and at present he had no doubt that the pulp had returned to a normal condition. Dr. Jack's paper was suggestive, he hoped that by following those observations we might be able to diagnose more clearly than we can now the exact condition of the pulp so as to apply promptly the treatment best suited to its condition.

Dr. W. B. Miller of Altoona, exhibited and, assisted by drawings, illustrated his method of applying the various forms of duplex and other matrices he has invented. They are practical devises and will no doubt prove quite useful. In the absence of the drawings it is impossible to give an intelligent idea of their construction and the manner in which they are applied.

Dr. Sophey E. Feltwell, of Pittsburg, read a paper entitled "Abscess and its Treatment." The essayist traced the usual course of alveolar abscess, describing its several varieties, and noting those points where diagnostic care is needed to avoid mistaking alveolar abscess for allied conditions in the surrounding tissues. The treatment suggested did not differ materially from the other that is usually adopted.

(*To be Continued.*)

Acid and Caries.—Dr. G. V. Black of Jacksonville, Ill., says caries cannot progress in the presence of alkali; there must be acid, and this in a state of fermentation. Mineral acid will not produce caries; it must be a vegetable acid and its ferment must be sugar or starch. The fungi accompanying caries is always present in fermentation. They are always vegetable, and therefore the "bug theory" is a misnomer. When it is applied to the fungi of the mouth or to caries of the teeth, it shows ignorance, or is intended to, through ridicule on scientific research of this kind.

TEACHING FOR HANDS AS WELL AS FOR HEADS.

All the colleges, high schools, and other advanced institutions of learning are thrusting their graduates out on the world. Of these tens of thousands perhaps not two per cent have learned how to *do* anything. The education has been of the head alone. They have been taught to know a great many things of variable importance, but of the practical work of the world, by means of which men and women earn their bread and butter, they are ignorant. Much of what the schools impart is certainly useful, and the least important of it may have some value; but it is fairly a subject of complaint against the system of education in use in this country that it is too completely theoretical and bookish.

The injurious consequences of this fault appear in several forms. As the country grows industrially the demand for skilled workmen increases. In the presence of this demand we have, first, the fact that the old and excellent apprentice system has fallen completely into disuse, and, second, the further fact that the modern trades unions are hostile to apprenticeship in any comprehensive form, new or old. It is not the least of the counts against the unions that they stand resolutely in the way of young Americans who wish to acquire knowledge of any craft. As a consequence we import from Europe every year thousands of skilled workmen, while our own young people are driven into poorly paid clerkships or persuaded to attempt success in the overcrowded professions. It is extremely discreditable to the practical common sense of the American people that they should permit this state of things so long to continue. It is a reflection on the good judgment of the nation that it should expend millions every year on instruction which only half fits the young for the actual duties of life.

Another and very serious consequence of this neglect of mechanical training is that it fosters the impression, already too widely prevailant, that mechanical labor should involve social and other discredit. Not only is this theory undemocratic, and in a political sense dangerous, but it is directly opposed to the best material interests of individuals and of the whole community. In a republican and industrial country like ours, it ought to be that the most expert handicraftsman is the man most honored. This is not a land for loafers. It is, in an exceptional and unique sense, the country of workers; and there can be no duty more truly patriotic than to instil in the minds of American young men that a man who works at a mechanical trade with a strong arm and a hard fist, and works dexterously, should have more respect than a lawyer who can hardly shuffle along in his profession, or a doctor who feeds graveyards. That lesson, as our readers well know, has yet to be learnt here. The prejudice against the horny-handed toiler

exists; but it ought not to exist, and when the schools and colleges do their duty, it will cease.

We would have in every public school a course of mechanical instruction. Both principles and practice should be taught, so that when a boy leaves school he will have his head and his hand already trained for some form of work in the shop or in the factory. The colleges might well take up the course of instruction where the humbler schools end it, and push pupils onward to the higher things in the arts. But he is a sanguin man who expects the old collegiate institutions to lessen their affection for dead languages and pure theory. The hope of advanced industrial education, therefore, lies in the creation of technical schools, of which there are now but two or three of high quality in the country. There is encouragement in the rapid growth, plainly discernable, of public opinion favoring such schools and such training for the young. This is the greatest manufacturing nation in the world, and as it becomes independent of other countries for its supplies of fabrics, so it should become dependent solely on its own population for its skilled workers.—*The Textile Record.*

PAINLESS PLAN OF CORRECTING IRREGULAR TEETH.

DR. J. N. FARRAR, NEW YORK.

Reported from proceedings of the Medical Society of King's College, N. Y.

Mechanical appliances for regulating the teeth are constructed on different principles of mechanics, now known as the probable and the positive; so called because one is sure and definite of action, while the other is not. These two plans not only act on different mechanical principles, but have also peculiar characteristic influences on the functions of the tissues involved.

The plan of construction by probable mechanics implies the use of elastic materials, such as springs and rubber, in such a way that a continued force is maintained on the teeth to be moved, the management of which is not only generally beyond the control of the patient, but is difficult to be made to sufficiently harmonize with physiological functions to attain the highest possibilities with the least pain.

The positive plan consists in constructing the apparatus in such a way that the force acts intermittingly at will to any desired degree, and is not only manageable by the dentist, but also by the patient, who really is the best judge of the greatest degree of force that can be applied short of causing pain.

This intermittent principle of action may be approximately attained by the use of the old and well-known wooden wedges, pegs set in a plate, metallic fingers occasionally bent, or by the inclined plane, but generally better and more accurately than all, by the use of screws.

Though various means have for a long time been in vogue for moving teeth, there was no classification attempted, so far as I know, till it grew out of an inquiry into the behavior of tissue-changes, involving a long series of original experiments during the processes of regulating teeth, which led to that which appeared to me to be a possibility of moving teeth sufficiently within the domain of physiological action (both progressive and retrogressive), to attain the highest possibilities with little pain,—a theory which years of subsequent experimental practice has now fully established to be the most scientific yet known.

Tissue changes in the sockets requisite to movements of teeth are not "necessarily pathological," as has been supposed. While pain and exhaustion caused by it, is clearly indicative of perverted physiological action, the unconscious straggling of a tooth from proper position, or even the drifting of a tooth by improper antagonism with its mate or from overcrowding by adjacent teeth, when accompanied with no pain or inflammation, are equally clear evidences that the tissue-changes have been carried on within the domain of physiological or normal conditions.

If the double process of retrogressive metamorphosis and absorption and formation of new tissue,—the necessary tissue acts before and behind a migrating tooth by art—if kept within certain limits, is painless, and if pain is the result of perverted physiological action, whether caused by continued force or by too great a degree of intermittent force, it logically follows that to the extent that pain is avoidable it is a violation of the law of harmony. This statement, however, is not intended and should not be considered to mean that pain or inflammation alone is evidence of malpractice.

If intermittent force of a definite degree, alternated with proper intervals of rest, will more generally attain the highest possibilities with the least pain and least annoyance to the patient, then the interests of humanity naturally suggest that as a general rule teeth should be regulated by this system whenever circumstances will permit.

While the old plans of making regulating apparatus only recognized one thing as essential,—force, based on the belief that "force is force," of whatever character; not even considering the almost necessary concomitant with such devices, filthiness, as worthy of consideration,—I claim that the character of force can govern the question of pain, and that the function of the tissues will always painlessly tolerate a proper degree of intermittent force if not too frequently repeated, and that any (cleanly) mechanical apparatus that can be controlled so as to attain these ends belongs to the positive plan of mechanics, and when based on and operated with these physiological functions in view, constitutes the main principles of the system that I advocate.

COHESIVE GOLD.

No. 1123 Bedford Avenue, Brooklyn, Sept. 21st, 1886.

FRIEND WELCH:—The appearance in the current number of ITEMS OF INTEREST of an article on "Cohesive Gold" imposes on me a very disagreeable task, none other than to deny most emphatically the claim incidentally put forth by Dr. Wm. A. Dwinelle, that he and I were ever engaged in the manner set forth, or in any manner, in pursuing investigations jointly, or as he puts it, "in experimenting for the purpose of developing Crystal Gold."

But perhaps I had better quote him fully. The exclamation marks and emphasizing being made by me.

"There was a time when we had no cohesive gold foil. Occasionally a gold-beater would, by over-refining his gold, produce a 'sticky' gold, as he termed it, regarding it as a misfortune. Not till Dr. A. J. Watts AND MYSELF WERE engaged some thirty-two years ago, in experimenting for the purpose of developing crystal gold, was it known that it is one of the inherent and peculiar characteristics of gold that when it is reduced to a state of absolute purity it is cohesive. This WE found invariably to be the case, absolute purity only insuring the highest degree of cohesiveness. It must not only be chemically pure, but electrically (?!!) pure, which WE gained by a species (?!!) of electrolysis. Having gained this absolute standard of purity and cohesiveness, WE had a basis of action, so to speak, from which WE could manufacture foil of any degree of cohesiveness by alloying with metals or by other methods."

After the discovery, by myself, of the fact that pure gold is necessarily cohesive, it was recognised by Dr. Dwinelle and others, but *he* had no hand and no part, or parcel in its discovery.

I am grieved and surprised that Dr. Dwinelle, so prominent a member of the dental profession, one who has done so much for its advancement, who has written and spoken so highly of crystal gold, and who was one of its ablest advocates and strongest defenders in its early struggles for existence, should have done this. He has in his past record won honor and glory enough without claiming any part in this my very own discovery.

It is true, many years ago I was informed that he made, to his patients and others, similar claims, in fact once boasted that he had taught me how to make it; but from the very absurdity of the thing I never for one moment supposed that he was in serious earnest, and therefore took no notice of these reports that came to me from time to time, except to deny them. But, more recently, I have heard of renewed claims, of claims that he has publicly made in society meetings. Naturally I felt grieved and indignant, but persuaded by the earnest

advice of friends I took no notice of them; but, now that he makes these claims anew, publicly, and in your journal, I can no longer forbear protesting and denying that he had any part in the investigations and experiments that were made by me "thirty two years ago" in developing crystal gold.

This is emphasized in a most conclusive manner by one simple statement which I can truthfully make, and which is susceptible of proof from the mouths of living witnesses, that during the whole course of my experiments in the search for crystal gold as I now make it—the kind that Dr. Dwinelle terms the "silky variety"—Dr. Dwinelle never once entered my laboratory, never saw any of the processes employed, and never, in any shape or way whatever, had any share in my investigations or experiments, *either before or since*, the period referred to above.

I say "investigations or experiments," advisedly and unreservedly, with this proviso, that at that early date specimens of gold were submitted to him from time to time for examination, trial and approval or disapproval.

If there be any honor in having discovered this beautiful and interesting form of gold, I must perforce claim, in all due modesty, that it *all* belongs to me. I had no help in my laborious search through the various and interminable products of electrolysis, and when, in the course of my experiments a few scattered brilliants, in the midst of a mass of dark sponge, made their appearance and the microscope brought to bear on them revealed to me a wonder I had never seen before, crystals nearly in the form of fern leaves, I felt the joy and enthusiasm of a discoverer, and then my real and earnest work began, the ascertainment of the *conditions* under which these precious, sparkling gems were produced. Day after day and week after week the laborious and exciting chase was kept up; and for one whole week, during the latter part of this hunt, when success seemed very near, your correspondent never once sought his bed. When I look back on that period and remember my lonely midnight vigils, and the ever pressing duties of the awaking day, I am truly amazed that Dr. Dwinelle who was then quietly engaged in his professional duties in Cazenovia should now claim that he then took any part in these labors of mine.

This is written in the hurry and pressure of business incidental to my return from vacation. Its object, dear sir, is to place before you as strongly as possible, and as early as possible, my earnest protest and denial as above, in order that you may give space in your next issue for any part of this which may seem best to you. If you will kindly do so you will confer a favor on Yours, very truly,

A. J. WATTS.

EUGENOL.

I do not remember to have seen anywhere a fully appreciative notice of *eugenol* among the list of drugs used as disinfectants, antiseptics, deodorizers, and obtundants. It is a superior agent in all these particulars, and is free from the objectionable characteristics usually belonging to the class. Though sharp to the taste, it is not especially disagreeable. It is not caustic, like carbolic acid and creosote. It is not destructive to the tissues, and there is nothing to fear from a little excess in using. It can be employed without extra caution for thorough saturation of infected dentine, or passed freely to the extreme points of root canals. While it thoroughly disinfects, it does not cauterize. It does not coagulate the albuminoid surface, leaving material for putrefaction beyond in pulp canal and dentinal tubules, as carbolic acid does, but penetrates, saturates, mummyfies, and *stays*. A root canal in which it has remained a day and a night is safe to fill, though previously septic.

Eugenol represents the strength of the essential oil of cloves. Whether its virtue comes from additional oxygen, as claimed by some, or mere exclusion of non-essential elements, I know not; but this I do know, that it is good. I have used it to the exclusion of other agents in most cases, for nearly three years, and with great satisfaction. No other agent has contributed so much to my success in the treatment of pulpless teeth. As a pain obtundant, by application to super-sensitive dentine, eugenol has the virtues multiplied of the time honored oil of cloves. This, with its disinfectant qualities and general innocence, gives it a value above any other agent with which I am acquainted for use in teeth containing living pulps.

I believe eugenol has not yet found its way into the stock of druggists generally. Care must be exercised in ordering, that the common oil be not substituted. Every dentist should have it. It is indispensable.—*Garret Newkirk, Dental Cosmos.*

Drilling Cavities in Porcelain Teeth for the reception of Gold Fillings.—I have for years used small corundum-wheels for this purpose; and besides these, I usually use my old steel burs afterward. At first I make the cavity with the smallest corundum-wheels and points I have, or can obtain; then I take an old engine bur, and while drilling keep it moist with spirits of turpentine, which has been saturated with camphor. This will cut the porcelain beautifully. But in using burs do not run the engine fast, but very slow, and not always one way. Run it half a dozen times to the left, and then half a dozen times the other way. Thus the bur will make its own edge and be sharp all the time. It will grind very quickly if kept moist with the turpentine and camphor.

ENAMEL, DENTINE, AND CARIES.

DR. FRANK ABBOTT, NEW YORK.

In First District Society, N. Y.

I will give as briefly as possible what I understand to be the manner in which enamel and dentine are formed, and their destruction by caries. Instead of a *secretion* from the ameloblasts, enamel is formed by the calcification of successive layers or rows of corpuscles; and the reticulum of living substance contained in them is preserved, and exists in the formed enamel. Dentine, likewise, is formed by the calcification of successive rows of odontoblasts, and the reticulum of living material, which is plainly visible in them, remains as the living substance (Tomes's fibers) in the formed dentine. I will here state that I cannot conceive of the slightest injury to any living tissue, where ever located or from whatever source the injury, without its producing an irritation of such tissue. The first lesion in the carious process of human teeth is a solution of the lime-salts of the surface of the enamel by some acid, generally produced by the fermentation of particles of food, saliva, etc. As soon as the living material is reached it becomes irritated, which irritation if allowed to proceed soon assumes the condition of inflammation of that tissue, and advances along the enamel fibers *in advance* of the solution of the lime-salts by acids. When it reaches the dentine this inflammatory condition advances more rapidly, and is much more intense, in consequence of the greater amount of living material affected. The lime-salts, after having been *dislodged by the swelling of the living substance*, are dissolved by acids and washed away. As they are carried away the reticulum of the former odontoblasts again presents itself and is eventually destroyed by putrefaction. During the latter process this portion of the decaying tooth becomes filled with "organisms of decomposition."

In the drawing which has been so timely exhibited by Dr. Sudduth of a specimen sent him by Dr. Miller a zone or territory of inflamed dentine is plainly shown far beyond that occupied by organisms. This is the territory claimed by Lebor and Rottenstein, and since by Dr. Miller and others, to be in a condition of decalcification by the solvent action of some acid. Now, this view, so far as I have been able to learn, is a mere supposition, its substantiation being based on the experiments in "pure culture" conducted by Dr. Miller, and of course out of the mouth, which *proves* nothing as to the actual conditions in the mouth. The experiments of Prof. Mayr (*New England Journal of Dentistry*, Vol. ii., No. 1), which most emphatically disprove such a position, seem to be lost sight of by these gentlemen. *It is a mistake on their part when they state that caries of dentine differs from caries of bone in that the process advances by the solution of the lime-salts and*

the subsequent destruction of the organic portion by organisms. It is also claimed by these gentlemen that the usual features of inflammation are not present in a decaying tooth. I would ask, what portion of the organism is subject to irritation? It is not the living matter? The heat, redness, swelling, and pain are effects, not causes, of inflammation.—*Cosmos.*

COCAIN DURING EXTRACTION.

Dr. McCoy's method, is as follows: For use in the hypodermic syringe he has an article of four per cent solution of hydrochlorate and a ten to twenty per cent solution to use topically. The syringe should be of the best make, with a fine point, kept sharp. To remove a single tooth where the patient is nervous or the gums tender, he dries the parts carefully, and then applies a ten per cent solution all around the gum at the neck of the tooth. He then saturates small pellets of cotton, placing them between the teeth at the neck of the tooth to be extracted. He then covers the gum on either side with four thicknesses of bibulous paper saturated with a solution of the same strength. These appliances are held in position from five to seven minutes. The gums will then be insensible, and the four per cent solution may be injected without pain.

If the patient is not specially nervous, and the soft tissues are in ordinary health, the injection may be made at once. The point of the syringe should be inserted through the gum on both sides of the tooth, discharging from two to three minims as near the alveolus as possible. Then the ten per cent solution should be applied as above described. In from ten to fifteen minutes from the time the hypodermic syringe is used the gums may be lanced and the teeth extracted without pain. The gums should always be tested by piercing them with a sharp-pointed instrument and the extraction should be delayed until they are completely callous.

The anesthetic effect extends to the tooth on each side, and with a small addition of cocain three teeth can be anesthetised at the same time. If a tooth should be broken off in extracting it, the operator should not wait, but immediately extract the root, as the hemorrhage seems to neutralize the effect of the cocain. The anesthetic effect rapidly disappears after the teeth are extracted.

The doctor says his experience in the use of cocain for the first two months was a succession of failures, but during the past year it has been always attended with success.—*Archives.*

Dr. Frank Bosworth says he has had great success with a two per cent solution of muriate of cocain in hay fever. He thinks that catar can be caused by dry air.

TEETH OF THE PIKE.

TOMES' DENTAL ANATOMY.

In the osseous fish which forms the group comprising all the fish most familiarly known to us, the variation in dentitions is so great that few general statements can be made about them. It is not uncommon to find teeth crowded on every one of the bones which form a part of the bony framework of the mouth and pharynx, and the teeth are sometimes in countless numbers. And so great is the variability that even within a single family there are differences in the teeth.

In the common pike the mouth is crowded with sharply-pointed teeth, having a general inclination backward, and being in some parts of the mouth of larger size than in other parts. The margin of the lower jaw is armed with teeth of formidable size and sharpness, the smallest teeth being in front, where they are arranged in several rows, the largest near the middle of the side of the jaw. A pike, as is well known to anglers, when it has seized a fish often holds it across its mouth, piercing and retaining it by means of these largest teeth; then, after holding it thus for a time, and so maiming it and lessening its power of escape, swallows it, generally head foremost. The tenacity of the pike's hold is often illustrated when it takes a bait, and retains it so firmly that when the angler "strikes," the hooks do not get driven into the fish's mouth; but after tugging at the bait for a time the pike releases it, and the angler finds it has never been hooked.

The margin of the upper jaw is not bordered by teeth, except in front, where the intermaxillary bones carry a few teeth of insignificant dimensions; indeed, it is rather exceptional for the true maxillary bones to carry teeth in osseous fish. The roof of the mouth presents three wide parallel bands of teeth, those in the median band (on the vomer) being directed backward, those on the lateral bands (on the palatin bones) backward and inward. Some of the latter teeth are very large, but not quite so large as those at the sides of the lower jaw.

The marginal teeth are firmly ankylosed, stiff jointed, but the teeth on the palate are all hinged, and in such a manner they can only bend in one direction. Those on the vomerin (plowshare shaped) band which lie in the middle line, will bend backward only; those on the outer margins of this band backward, with an inclination outward. Those of the lateral or palatin bands bend obliquely backward and inward, about at an angle of 45 with the median line of the mouth, or somewhat more directly backward. To a body sliding over them in one direction they offer no resistance, bending down as it passes, and springing up as the pressure is removed from them, but to anything moving in any other direction they are rigidly fixt sharp, curved stakes impeding its further progress.

An elongated body of some size, such as a living fish, can only be swallowed by the pike when it is arranged lengthwise in the mouth; crosswise it cannot possibly enter the throat. The hinged teeth on the palate seem admirably arranged for getting the fish into a longitudinal position and keeping it there; for, if we imagine the fish's body held against these teeth, and consider the direction in which the hinging of the teeth allows them to yield, it will be seen every motion tending to arrange the body lengthwise, either in the median line of the mouth or in either of the interspaces between the vomerin and palatin bands of teeth, will meet with no obstruction, but in every deviation from this position it will be caught on the points of the teeth and resisted. Thus with the pike's mouth shut, and the fish kept against the palatin teeth, even its own struggles will be utilised by every movement tending to place it aright being allowed, and every other stopt by the bands of hinged teeth entangling it.

The lingual bone, and the three median bones behind it, carry small teeth arranged in oblong patches; the internal surfaces of the branchial bones (which support the gills) are armed with similar small teeth; while the last or fifth branchial arch (which carries no gills, the bones forming it being called inferior pharyngeal bones,) carry larger teeth. The superior pharyngeal bones (which are median portions of the four anterior branchial arches) also carry recurved teeth larger than those which line the rest of the internal surfaces of each of the branchial arches.

The pike's mouth and pharynx thus fairly bristle with teeth, all directed somewhat backward; and any one who has been unfortunate enough to have allowed his fingers to get entangled in the mouth of a living pike will realise how small a chance its living prey has of escape, when once it has been seized.

The teeth of the pike are composed of a central body of osteo-dentine, on the outside of which is a layer in which the dentinal tubes are directed toward the surface, as in hard or unvascular dentine; while the outer portion of all is a very dense and hard, and apparently structureless, enamel film. The teeth are ankylosed to the bone, and are very frequently renewed, their successors being developed at one side of their bases.

Though the pike has rather more teeth than many other fish, it may be taken as a fair example of most osseous fishes in this respect.

W. B. Jones in ITEMS of July describes the strange sensations of one for whom he extracted a tooth, he applied chloroform locally, and I would suggest that the patient having some heart affection, was responding to the action of the chloroform, which acts immediately on that organ. ANNA B. RAMSAY, D.D.S.

TOOTH DEVELOPMENT.

DR. C. E. BÖDECKER, NEW YORK.

In New York Odontological Society.

It has been well known, ever since the publication of Franz Boll, of Bonn, that whenever a fiber develops from a protoplasmic body it is always from its periphery, and never from its center. Fibers may appear as though coming from the end of a protoplasmic body, but they are peripheral formations sometimes joining at a point in one of the ends of these corpuscles, either the front or the back. This may have led to the belief that the fibers extending from protoplasmic bodies called odontoblasts are developed from their center. I have seen many specimens of odontoblasts and other tissues, but I have never in a single instance been able to observe that a fiber from the point of the odontoblast has been traced through the center. If you will take the trouble to split a freshly-extracted tooth and throw it into a solution of osmic acid which will stain the living protoplasm and nerve fibers you will find it has stained the enamel-fibers as well as the dentine-fibers in their proper situation. The history of the development also shows this. The fibers are quite plainly visible in every embryonic specimen of enamel. It was such specimens that led me to the study of enamel-fibers; though I have to admit that the enamel-fibers in adult teeth, when stained with other reagents than osmic acid, do not appear very distinctly, for when studying enamel with Dr. Heitzmann, on calling his attention to the fibers in a ground section of enamel, very slightly stained with an ammoniacal solution of carmine, he laughed and pronounced it to be dirt from the process of grinding; but after studying another specimen, stained with chlorid of gold, he fully admitted the presence of enamel-fibers. Dr. L. Waldstein—a gentleman who has been an histologist and was the assistant of Professor Arnold, of Heidelberg, for years—saw some preparations which I had arranged for the microscope, and I asked him to tell me whether he was able to see any fibers within the enamel. I informed him that the specimens were prepared and stained in the following manner: The teeth, immediately after extraction, were split and immersed in a one per cent solution of hyperosmic acid for twenty-four hours, and then put in absolute alcohol for two or three days, ground thin on a corrundum wheel, and mounted in the usual manner. After a careful examination, Dr. Waldstein pronounced the dark fibers lying between the enamel rods to be protoplasmic formations. Therefore, unless there is something mysterious about the osmic acid, or the lenses which I employed (which were made by Zeis) are unreliable, I must hold to the assertion that there are enamel-fibers between the calcified rods of enamel.

I have examined many specimens of ground teeth the peripheries

of which were slightly attacked by caries. In one specimen I noticed places where a little of the enamel was rubbed away,—hardly perceptible to the naked eye. In the fissures of the tooth there was slight decay. I observed at the boundary between the dentine and enamel a reaction in the enamel-fibers which made them appear much swollen at a point corresponding to the enamel that had been rubbed away at the periphery; also, at a point corresponding to the fissure which was slightly decayed. Some of the fibers thus affected could be followed for quite a distance, and they appeared the thickest or most swollen toward the boundary of the enamel and dentine. Gentlemen, can you imagine that bacteria would have crawled in at the periphery of the enamel along the fiber without leaving a trace or track, and only produce a reaction near the dentine; or, to use an expression of Dr. Abbott's without "using their acid bottle" in the beginning? Evidently, they did not use it at the beginning, because I observed no enlargement of the interstices or reaction of the enamel-fibers at the periphery, but only between the boundary of the enamel and dentine, and corresponding in width to the place of injury. It is quite evident from this that there must be living material in the enamel; for, if there were no living fibers in the enamel, how could such a reaction occur?

One of my first attempts to study special subjects in Dr. Heitzmann's laboratory was the observation of necrosis. Both Dr. Heitzmann and I were much surprised at the slight difference, under the microscope, of normal and necrosed specimens of bone. It is all very well for gentlemen to say that necrosis of bone is an entirely different process from caries of teeth, and in a certain measure that is so; but I do not believe caries can be so very widely distinguished from necrosis. I do not, therefore, object to the term caries in comparison with caries of bone, though it must be acknowledged that bacteria must necessarily exert an immense influence on caries of the teeth, because they are present wherever putrefaction is going on. May the patient be ever so healthy, they are there; and the conditions are nowhere in the body so favorable, probably to the production of caries as in the mouth. But, at the same time, I cannot believe that caries is the immediate and only result of these organism, and that the reaction of the living protoplasm which is visible during caries should have no influence in this process. In specimens of caries of dentine which I showed to Dr. Waldstein—who is an impartial observer, and who has had much experience in the study of bacteria; though he has written several essays on the subject, and is frequently quoted in medical literature, and though he did not at the time know anything about the dental tissues, he at once acknowledged that the reaction in the dentine was inflammatory in its character. I asked him "Are there any bacteria present?" He

replied, "There are plenty, but the reaction of the protoplasm is so evident that I am perfectly convinced it cannot be from bacteria alone."—*Cosmos.*

RUBBER PLATES.

DR. A. BERRY,

It must be admitted that some of those who have investigated the results of wearing rubber plates believe that in a majority of instances they cause diseased action of the mucous membrane. But are they not laboring under a mistake? Is not the trouble produced by faulty adaptation?

If a plate of gold, or any other material, is so placed as to touch the gums about the necks of teeth it generally induces diseased action. Gold and other metal plates, as well as rubber, sometimes cause the mucous membrane covered by them to assume an appearance similar to that of beef slightly broiled. But with properly fitted plates this is a very rare occurrence; and no more liable to be induced by rubber than by any other material.

A rubber plate, retained by attraction of cohesion, sustaining an incision, was inserted in a mouth in healthy condition. When worn a few weeks three-fourths of the part covered by it was red and appeared much diseased, but had produced no discomfort to the patient. The dentist said, "it is charged against rubber that it sometimes causes disease of the mouth, but I do not believe it is true. This is a good case to test it and I would like to make a metal plate to see if any improvement comes from wearing it." An aluminum plate was substituted, and when worn about five weeks the patient called and the dentist said: "Please, madam, take the chair and let us see the improvement from the metal plate." But no perceptible change in the appearance of the mucous membrane had occurred.

The principal objections to rubber as a base for teeth are deficient strength, and contraction in vulcanizing, unless worked according to Stuck's patent. Those who know how to construct gold plates properly believe a better adaptation can be obtained by them than by rubber, as usually manipulated.

Cohesive Surface Forms may be securely held in place on the model and their forms perfectly preserved in molding, by coating the upper surface with a thin mixture of phosphate of zinc pressed to place with the fingers enveloped in spunk to prevent floating the surface. The rubber cement I have found valueless for this purpose in molding celluloid in steam.

Loup City, Neb. J. W. PLUMMER.

A REPREHENSIBLE PRACTICE.

"For ordinary nervous toothake, which is caused by the nervous system being out of order by excessive fatigue, a hot bath will so soothe the nerves that sleep will follow, and on getting up the patient will feel much refreshed and the toothake gone. For what is known as the "jumping" toothache, hot, dry flannel applied to the face and neck is very effective. For common toothake, which is caused by indigestion, or by strong, acid, or anything very sweet or hot or cold in a decayed tooth, a little piece of cotton, steeped in strong camphor or oil of cloves, is a good remedy. Care in the diet, especially when the bowels are disordered, is helpful to mitigate toothake. *If the tooth is much decayed, nothing is better than its extraction.*"

The above is the greater part of an article clipped from the Sunday edition of one of the most widely circulated newspapers in this country. The italics are ours. We desire to protest against the reprehensible, though perhaps unwitting, practice of giving to the public through widely circulated mediums such teaching. Many give credence to just such paragraphs, and follow their directions. It has often occurred, for instance, that inexperienced persons have, through newspaper or incompetent advice, poulticed the outside of the face to relieve a severe toothake, and as a result pointed an abscess to the outer side of the face, causing in the end a disfiguring scar for life. It will be noticed that, in this quotation, not even a mention is made of a dentist, such an insignificant and useless person not included in the estimation. It would be considered criminal practice to publish an item of a medical nature, if in the carrying out of its directions harm would result to the individual. None the less should it be considered a criminal act to mislead by the publication of articles setting forth such villainous advice in the treatment of an ailment so common as toothake, but which could be made far less so, if the minds of the masses could be reached by wise counsel. The advanced practice of the present day is tending more and more toward the complete salvation of the teeth and not their ruthless destruction, even though "the tooth is much decayed." Time was when dentists were curiosities and dental ailments were attended by physicians, horse-doctors, blacksmiths and barbers. But that time has happily passed, and no community now suffers the want of the invaluable services of the dental surgeon. True, in too many instances the people do not seem willing to trust the opinions of the dentist, but think a physician must be consulted to obtain the best treatment of ailments which have been made the special study of the dentist but have been neglected by the doctor. Often patients will willingly pay one or two dollars to have an alveolar abscess lanced by a physician, but will complain loudly if a dentist charges twenty-five or fifty cents. In these days of the practice of specialties people should be shown the importance of consulting the right authority regarding their disorders,

and of avoiding advice from an unreliable and unauthentic source.—*The Dental Eclectic.*

TOADS AND FROGS.

Toads are edentulous, or toothless, and the frog has no teeth in the lower jaw.

The teeth of the frog form a single row on the margin of the upper jaw, their points projecting but little above the surface of the mucous membrane; and the vomerin teeth are few and cover only a small space.

The toothless lower jaw passes inside the row of upper teeth, and, having rounded surfaces and no lip, fits very closely against the inner sides of the teeth. Thus it leaves very little room for the young developing tooth sacs, which are accommodated with the space required for the attainment of their full size, by the absorption of the older solid bone and the tooth which has preceded them, in the following manner. The teeth are attached to the bone by ankylosis, each tooth being on a little pedestal of bone which is specially formed for it; and the successional teeth, the germs of which originally lay at the inner sides of the old teeth, commonly undermine the side of the pedestals and the bases of the latter, and move bodily beneath them, so that the new tooth completes its development in what was once the pulp cavity of its predecessor.

The teeth of the frog consist of a body of hard dentine, coated with an exceedingly thin layer of enamel, the existence of which has been doubted by some writers; but a study of the tooth sac of the animal renders it probable that the transparent layer undoubtedly there is really enamel.—*Tomes.*

Editor ITEMS:—In your ITEMS OF INTEREST for July I find in the report of the "Combination of Porcelain and Rubber Work," the credit of introducing it is given respectively to Drs. Swain and Land. Permit me to state that I demonstrated such work in Philadelphia, in 1878. again gave clinical instructions on it at Maryland Dental Schools, and later submitted a new method to the First District Society of New York, in which I was able to dispense with the metal base, so objectionable on account of the different contraction between the porcelain and the platina, resulting in fractures of the enamel, which is overcome by the new process.

Baltimore. GENESE.

Erosion.—Dr. Bonwill says: I *have never seen a case where the teeth had been generally eroded, but could be accounted for by friction, and nothing else.*

DENTAL SOCIETIES CONNECTED WITH THE HOSPITALS OF GREAT BRITAIN.

DR. A. W. HARLAN, CHICAGO.

The British Dental Association, is held in the Dental Hospital of London, and the journal of that society is published there. The Odontological Society of Great Britain is also located on the lower floors, and their museum, rich in models, casts, skulls, and other valuable materials in human and comparative anatomy, is open to the student desirous of gathering knowledge. The past and present students have a society, which holds monthly meetings in the hospital, a great advantage for the juniors. They hold annual reunions and give a dinner, to encourage social intercourse. Outside the entrance is a box for contributions for the support of the hospital. Soirées and subscription parties are also given from time to time for the support of the hospital. I thought, in ruminating over the subject, that if small fees were collected for all plastic filling operations, the contributions which are made by the benevolent, and the other funds coming into the hospital, might be used to reduce the cost of operations in gold, and thereby benefit the student by teaching him, from actual practice, the better methods of operating. I do not wish to be misunderstood in the above paragraph. The student is taught the methods, but he does not have enough practice in the use of gold while he is a student. The British journals publish a list of the operations performed in the various hospitals every month, and any one can see the justice of these remarks. Here is one of the late reports:

Monthly report of cases treated at the Dental Hospital of London, from Oct. 1st to Oct 31st, 1885:

Extractions—	Children under 14	378
	Adults	912
	Under nitrous oxid	276
Gold stoppings		267
Other "		879
Advice		121
Irregularities of the teeth		97
Miscellaneous cases		387

National Dental Hospital—same month:

Extractions—	Children under 14	424
	Adults	555
	Under nitrous oxid	614
Gold stoppings		121
Other "		625
Advice and scaling		421
Irregularities of the teeth		409
Miscellaneous cases		146

Each statement is signed by the respective house surgeon. No report of roots filled, or abscesses treated, or crowns or pivot teeth adjusted. The records speak for themselves. In the report of the National Dental Hospital for the year 1885, there is a record of 9,001 fillings, of which 1,014 were made with gold. I have not seen the report of the Dental Hospital of London for the same year, but the monthly reports of fillings average about the same. That is to say, not quite twelve to the hundred are gold fillings. One unconsciously gathers from this, that the insertion of such a large percentage of fillings other than gold has a tendency to discourage thorough cleansing and preparation of cavities. Hence the frequent failure of plastic operations.

I visited the National Dental Hospital also, and the methods of teaching are similar, the hours of attendance of patients, operators, house surgeons and clinical instructors, occupying about the same time. This school is younger, and it occupies smaller quarters, but in other respects I should judge the instruction is quite as thorough and scientific as in the older school. The fees are not quite as high. I found the house surgeon quite as willing to show me the working of the school as his *confrère* in Leicester Square. I visited the hospital on a rainy morning, in the company of another American dentist, and while there a discussion arose concerning the use of filling materials. The house surgeon argued that it was almost useless to insert gold fillings for the class of patients who visit infirmaries, as such people took no care of their teeth. I took the other side, or the student's side, which was that it was a benefit to him, as it taught the use of instruments, and the manipulation of gold; and that he would be better prepared to operate for himself when launched into the arena of daily personal practice. The question was not settled, but I hope I impressed him with the importance of the proposition. This is the principal observable defect in the clinical instruction of each school. If there are forty students in a school for the year, and only 1,000 fillings of gold inserted during that time, it indicates a small average in the total number of fillings for each student.

The English student is well instructed in the use of anesthetics; much better than are Americans. He learns more of comparative anatomy than we teach, and is generally well drilled in normal and pathological histology. Dental surgery and special therapeutics, I believe, from what I saw and heard, are better understood at home, by our college-educated dentists, than by our English cousins. This is my impression from many conversations held with dentists of low and high degree. They are better mechanics in the work-shop, *en masse*, but not so ingenious or inventive. When it comes to the final

examination, we must take a back seat, as the licensing bodies are not the teaching corps. When we adopt—as we must in time, and I hope soon—that feature of professional education, then will our diplomas be like Cæsar's wife, above suspicion.

We deliver more didactic lectures in a six months course in America than an English student listens to in eighteen months. By different methods we arrive at the same result. They consume more time, but place them side by side in practice, in a working society, in the field of journalistic contributors, and our own American graduates will hold their ground quite as well as the subjects of the Queen. The amount of valuable material published in professional journals in America attests this.—*Independent Practitioner.*

IMPERFECTLY AND ILL-SHAPEN JAWS.

Dr. M. H. Cryer says: Diseases of the soft parts often change the shape of bones, particularly in the young. Aggravated tonsilitis in childhood will, if chronic and accompanied by hypertrophy, cause the roof of the mouth to take an inverted V-form. If the patient has suffered from the disease on one side only, that side will be pulled down. This is caused by the extra tension of the palato-glossus and palato-pharyngeus muscles. Then the palatal process of the upper maxilla and palate bones are prevented from forming the normal dome-shape roof of the mouth, and the vomer is directed or pushed from its proper position, becoming crooked or lacking space to occupy its normal position, it is deflected or pushed forward, thus forming an abnormally large nose. By proper treatment at an early period many such deformities can be avoided. Tumors of the maxillary sinus may change the shape of one or more of the surfaces of the upper maxilla; and an aneurism or other soft tumor constantly pressing against a bone will cause its absorption.

Iodol.—These of us who use iodoform in the consulting room must frequently have been seriously annoyed by its powerful and persistent smell. Drs. Silber and Ciammician, of Rome, have found an admirable substitute which has all the advantages of iodoform without its odor or, it is said, its poisonous properties. This substance is iodol, which occurs as a dark powder with a slight scent, reminding one of thymol. It is very slightly soluble, and is best used either in substance or suspended in glycerine, or made into an ointment with vaseline. A lotion can also be made by dissolving 1 gram of iodol in 16 grams of alcohol and adding 34 grams of glycerine. Most brilliant results have been obtained by the use of the substance itself on chancres and syphilitic adenitis. In simple indolent ulcers, too, the use of the iodol lotion has been very beneficial. A spot of lupus on the leg was treated

by injections of iodol solution into the surrounding subcutaneous tissue with the result of preventing the disease from spreading. Iodol has also proved useful in fungating joint diseases. Over 200 observations have been made, and neither erysipelas nor a diphtheritic condition of wounds has occurred.—*Wiener medicinisches Blatt.*

"DEAD TEETH."—RESETTING IN RIGGS' DISEASE.

Editor ITEMS:

In looking over the September number of THE ITEMS OF INTEREST I have come on one thing after another of much interest, and some things that need comment and correction.

I am surprised that a man of so much real knowledge as Dr. Judd should tumble into so much of looseness in his remarks on *dead teeth.* Does the good doctor not know that he, as a really scientific man, should not go on using such misleading nomenclature? Are these teeth dead? We are not surprised that M. D's should not know the difference; for they have the example set them by those who have taken asylum with them. For instance, read this in the last *Cosmos:* "I have seen thousands of dead teeth filled, and lasting for a life time." If that sentence is not a poser, then let some scientific dentist analyze it.

Mr. Editor, if you will refer to the *Cosmos* you will find that the remarks credited to the Odontological Society by Dr. Heitzmann were uttered at the anniversary meeting of the First District Society,—see their proceedings.

Again, I see that Dr. Mead, of Greenwich, Conn., refers to some operations for remedying Riggs' Disease. He extracted the teeth, cleaned off the deposit, and returned them to their place, and on examination he found the result *very satisfactory, more so* than by any other treatment *he* has tried. Now, if he is so well satisfied, does it occur to him that they would have been more satisfactory ultimately, if he had removed the pulps and properly treated the canals before he reinserted them? or has he gotten reunion of the pulps, as Dr. Allport stated before the American Medical Association, he had, after he had removed all deposits, and repeatedly carried the instrument over the apical end of the roots? Dr. Mead says he has watched Dr. Mills in operating in the Riggs' treatment, and he, Mills, produced more blood and suffering than Dr. Mead thinks he did. Does the Dr. know that "blood will tell," and that out of suffering the highest type of life is evolved? The best way is as good as any.

New York City. GEO. A. MILLS.

A few drops of ammonia put into a little water will clean a hair-brush very nicely. If very dirty, use a little soap also. After cleaning, rinse in clear water, tie a string round the handle and hang up to dry.

SOUTHERN DENTAL ASSOCIATION.

[Reported for ITEMS OF INTEREST by "Mrs. M. W. J."]

Concluded from page 419.

Dr. William Crenshaw, Atlanta, Ga., reported a perfect system possible in filling teeth. The essentials for uniform, systematic work, Dr. Crenshaw considers to be Perry's Separators, rubber dam, the electric mallet and cohesive gold. With these only, and these always, a complete system is possible. When materials are varied, changed, and abandoned with every variation of conditions and environments, it is impossible to reduce work to a system.

Dr. Jas. S. Knapp, sent a paper on

NERVE CANALS,

which was read by Dr. Solomon. He considered as a rule, the exposure of a nerve was soon followed by loss of vitality in spite of all the efforts of operators who exert their skill in endeavors to preserve it. The result of his observations was that within the last twenty years, a great majority of the best operators had concluded that it was better to remove the nerve entirely, and fill the canal. The opening into the canal should be enlarged and made funnel form, to facilitate the passage of instruments in the work of cleaning, shaping and filling the canal. He considered the best method of removing the contents of a root canal to be a pointed stick of osier or orange wood placed at the entrance of the canal and tapt two or three times with the mallet, when the pulp will be found to adhere to the wood. Prefers orange wood, dipt in carbolic acid as the best filling for root canals.

After the subject of operative dentistry had been discussed and passed, another paper was received from Prof. Gorgas, which was read by title, and referred to the Publication Committee.

SAVE EXPOSED PULPS.

Dr. Salomon opened the discussion, opposing the views taken in the paper he had just read. He endeavored to save the nerve so long as life was left in the least portion of it. If freshly exposed and healthy, would cap and fill at once: if diseased, would puncture slightly and treat with eucalyptus and iodoform; if pus had already formed, would cut out the diseased portion with a sharp spoon-shaped excavator. He sometimes puts next the nerve a paste compound of calomel, oxide of zinc and glycerin. Had seen most outrageous results from wood driven into the pulp, in some cases the wood being driven through the apex. He said that the pulp does not entirely fill the chamber; at the age of seventeen or eighteen there is a distance of from two to two-and-a-half millimetres between the wall of the chamber and the pulp, and at the age of thirty or forty, from four to four-and-a-half millimetres. He had frequently made these measurements.

Dr. Louis Dotterer, did not see how there could be any space between the pulp and the walls of the chamber, as the pulp sends out filaments all through the dentine. He thought the process of cutting off a portion of the living nerve would be terribly painful.

DIFFERENCE IN GOLD.

He could not agree with Dr. Crenshaw in the exclusive use of cohesive gold; soft gold being more congenial in the cervical margins.

Dr. J. J. R. Patrick thought too much stress was laid on the difference in different forms of gold. If gold was pure, it was the same the world over; where any difference exists, it is due to some alloy, or to something smeared on the surface.

GET THE BEST.

Dr. McKellops said he made it a rule to have the best that money can get. Had spent a great deal of money on engines, batteries, mallets, etc., but found nothing that would do as delicate work, or ensure such perfect success, as the Bonwill mechanical engine. He said that it begins to look now as if the system of "that man from over the water" (Herbst) was going to be the coming thing, but it would not do in all hands. Each man must work it out for himself, and not take it on the ground of what another man says. He had never found that space between the pulp and the walls claimed by Dr. Salomon. The pulp was often prominent up in the branches of the cusps. There was no such space in young teeth, and in old age the shrinkage was followed by corresponding filling up with toothbone, till the chamber was sometimes obliterated.

Dr. Morgan said it seemed to be taken for granted that as good work could not be done with soft gold, but only a few days ago he had occasion to examine some fillings he had put in forty years ago, and they were still standing without a flaw.

Dr. Beech thought it a narrow view to be restricted to the exclusive use of a specific gold. To make the best operation sometimes required a combination of different materials and different methods in the same cavity. He had for fifteen years filled rootcanals with lead, and had never yet found a failure. Nature tolerates lead as she will no other material; it is encysted even if projecting beyond the foramen.

Dr. Winkler would combine the best of all the various materials and the methods of the best operators; would use a non-conductor near the nerve, and the form of gold, which would best protect the cervical margins from leakage, finishing the surface with cohesive gold well condensed.

Dr. Morgan was glad to hear it stated that all pure gold was chemically the same, the difference growing entirely out of the

relations of the molecules, or from something on the surface; it is not in the gold itself.

PYORRHEA ALVEOLARIS.

Dr. R. B. Adair, Gainesville, Ga., was introduced by the President as an expert in the treatment of pyorrhea alveolaris, who had expected to give a clinic on his method, but not having been able to find a patient, would explain his method.

Dr. Adair congratulated Nashville on not being able to produce a case of pyorrhea alveolaris, on which he could demonstrate his system of treatment, the result of experiments begun some eight years ago.

Surgical treatment, though essential in removing irritating deposits, will not restore lost tissues, and food will continue to be forced down into the spaces, continuing the irritation. All mechanical methods of preventing this have proven failures, even the sponge-graft not always succeeding. The treatment given by Dr. Adair is as follows:

Crystals of iodine are dissolved in pure wood creosote, forming a saturated solution; this is applied down in the pockets and all over the suppurating surface.

Giving this a little time to take effect, the surfaces are then made perfectly dry, and the second preparation applied, made as follows: Crystals of tannin are packed in a small wide-mouthed bottle, till it will hold no more, when glycerin is added till the tannin is dissolved, making a very thick solution. The parts being made perfectly dry, this glycerode of tannin is applied; the overflow of saliva forms a tannate of albumen, forming a pellicle which resists friction and seals up the pockets. The first application destroys germs and stimulates granulation; the second effectually protects the parts.

At the daily sittings this pellicle is pealed off (the patient having been instructed not to disturb it in the meantime), and the applications made as before, the treatment taking from ten to a hundred daily sittings. All deposits must be thoroughly cleaned off at the first sitting, and the granulations not disturbed at subsequent sittings. Judgment will indicate when to discontinue the application of the first remedy after the pockets are filled, continuing the second till the soft tissues are perfectly restored. He has succeeded with teeth which were perfectly loose (tying them firmly in position), and which were denuded to the apex.

Several members vouched for the success of Dr. Adair's method of treatment.

Dr. Catching thinks there is always caries of the margins of the process, to which he applies aromatic sulphuric acid, and then treats with chloride of zinc—forty grains to the ounce—applied with a sable hair brush.

Dr. G. Chisholm has good success with Dr. Adair's method, but uses in addition a mouth-wash, as follows:

Crystals iodine.....	3 grs.	Tr. aconite.....	3 drachms
Myrrh.....	1 oz.	Tannin.....	10 grs.

Sufficient alcohol to make three ounces, flavored with wintergreen, and used by putting a few drops on the brush, without water.

Dr. Salomon asked if this treatment would cure cases produced by uric acid?*

Dr. Morgan said any mode of treatment not based on a knowledge of pathology was empirical and quackish.

Dr. Crawford asked if the disease might not have its origin in the cementum, the pericementum being the first tissue to make outcry. There is nothing better to excite healthy granulation than touching with pure carbolic acid.

Dr. W. H. H. Thackston spoke of the pathology of fifty years ago, when it was taught this disease was the local exhibition of a constitutional disturbance; of a vitiated and impaired nutrition of the general system. It was then called "conjoined suppuration of the gums and alveolar process."

It might be modified or palliated, and kept in abeyance through the co-operation of intelligent, careful patients, but there could be no radical cure except by the correction of systemic conditions.

Prof. J. Taft described the disease in its different phases of manifestation, the systemic conditions which favor its occurrence, and the different theories maintained as to its cause and origin. He thought the old name, recalled by Dr. Thackston as good as any, and peroxid of hydrogen a grand agent in its treatment.

Dr. Thackston thought the reddish brown deposits sometimes found at the apex of the roots of teeth which were perfectly sound, and from which the gums had not separated, a deposit from the blood; a sanguinary calculus caused by systemic conditions, and possibly to uric acid in the blood as suggested.

Prof. Taft said he had never seen this form of deposit, except where there had been alveolar abscess; that it was a serumal calculus, thrown out from degenerated plasm or pus flow; from decomposing serum exuding through the tissue.

Dr. J. J. R. Patrick said that chemical analysis would not show any difference in the calculi, the difference being in the mode of deposit. Dr. Morgan thought there was no cure for this disease, except in the extraction of the teeth, which suggested the thought whether the primary cause was not located in the teeth themselves rather than in

* As suggested in an able paper read by Dr Reese, of Galveston, Texas, before the Southern Dental Association, in New Orleans, March, 1885.

their environment; perhaps in the pericementum and its relations with the cementum, as when the cementum is scraped from the root, and the latter devitalized by its separation from the periosteum, the trouble seems to be removed, and the gums heal. Whatever the etiology may be, we have—first irritation, then inflammation, then solution of the parts. The incrustations are sometimes soft pasty matter causing a breaking up of tissue, a darkish tartar following this decomposition of tissues. In forty years experience he has not seen six cases where there was necrosis of the alveolar process. The bone is softened, and the lime salts are carried off—absorbed—which is a physiological process; dead tissues are not absorbed; only living tissues are dissolved and carried off to the general circulation.

The surgical operation necessary should be completed at the first sitting; then the soft tissues are broken up, and blood poured out, forming a fibrous coagulum protoplasm which should not be disturbed; organized soft tissues will form and fill up the pockets, in the same way that a socket will fill after the tooth is extracted. The periosteum is never reproduced, but a scar tissue is formed, analagous to cartilage, which holds the tooth firmly in place.

Nothing is equal to carbolic acid for destroying the fungus growth found in the pockets, and stimulating healthy granulations. Robinson's Remedy is also valuable, a second application being rarely required. He considers Pyorrhea Alveolaris the local expression of systemic conditions, often hereditary, attacking whole families, of all ages, undermining the constitution, and laying the foundation of delicate health, which physicians do not understand; many lives are lost from it, though death is not often ascribed to this cause, as its victims succumb readily to other diseases.

Dr. Rembert inquired if the deposits, in young subjects were the same in proportion, as in adults.

Dr. Morgan replied that it was of different character, being more of a cheesy nature. Cotton moistened with carbolic acid, or iodine, placed beneath the gum, and left till nature expelled it, would often entirely cure it in young subjects.

Dr. J. Hall Moore said that he never saw a case that was not complicated with catarrh. In catarrhal patients, the roots of the teeth may be perfectly clean, bright and polished, but all other symptoms of pyorrhea present, pus exuding from pockets reaching down to the apex, with roughened alveolar border, etc., but neither salivary nor sanguinary deposits, and all complicated with constitutional catarrh. He called the attention of the Association to this point and requested observation in this direction.

Dr. B. S. Byrnes, Vicksburg, Miss., read a paper embodying

some interesting *Incidents of Office Practice*, as of imbedded wisdom teeth, a bicuspid held down by a retained temporary molar, etc.

Passed without discussion—Dr. Theo. Johnson, read a paper entitled

GOLD—COHESIVE AND NON-COHESIVE,

dealing with the chemical principles embodied in the preparation of gold for the use of the dental operator, which he thought should be more fully taught in the Course of Chemistry in the dental colleges.

A paper on dental hygiene, entitled

FOOD IN GESTATION AND LACTATION,

by Dr. Bissel, S. C., was received too late for reading, and was referred to the Publication Committee.

Dr. B. H. Catching gave the history of

A REMARKABLE CASE OF DENTAL DEVELOPMENT,

A very small delicate child, (prematurely born at six months) began cutting teeth at the age of seven months, and soon had a full set of small soft teeth, which were all lost in three months. Another full set was erupted by the time the child was fifteen months old, which crumbled like chalk and were soon all gone. At the age of two years and a half she weighed ten pounds and had a third set of teeth. She suffered continually from them, and they were all removed, and she had no more for several years. At the age of seven she weighed thirty pounds and had four new teeth, in the front upper jaw, but they were mere shells, adhering to the gum, and being troublesome, were picked off with the finger nail, and she was toothless till the age of eleven, when she began teething again. She is now fifteen years of age, budding into young womanhood, (a resident of Atlanta, Ga.) and is as stout and healthy as other girls of her age. She was fed solely on cod liver oil and lime three times a day till she was eight months old.

Casts of the mouth taken at different times were exhibited.

This concluded the business of the Association, of which a mere outline is here given.

Old Point Comfort, Va., was selected as the next place of meeting, the time being left to be decided by the Executive Committee.

The following officers were elected: Dr. W. H. H. Thackston, President; Dr. B. H. Catching, First Vice-President; Dr. J. R. Knapp, Second Vice-President; Dr. W. H. Richards, Third Vice-President; Dr. Crawford, Corresponding Secretary; Dr. L. B. Dotterer, Recording Secretary.

Dr. Catching ran very evenly with Dr. Thackston for president, receiving the same number of votes in the first ballot, one less on the second, and only three less on the final ballot. After the usual resolutions of thanks and the installation of officers, the Southern Dental Association adjourned *sine die*.

ARTIFICIAL TEETH.

W. S. ELLIOTT, M. D., D. D. S., DANBURY, CONN.

There is one prominent fault common to all makes of superior gum sections which, if corrected, the improvement would be appreciated by all. I refer to the abnormal prominence of the buccal surface of the bicuspids. When a proper antagonism is secured then a nice joint cannot be made, as the line of gum surface is broken and made unsightly; and when a good joint is made then the teeth point too far outward; and to secure a proper expression the buccal surface of the crowns must be ground till the substance is greatly reduced. The fact is—the teeth are not properly molded—they are little less than monstrocities. I think the actual line of the bicuspids should conform more nearly to that of the cuspid, and the teeth set more perpendicularly; then the contour line from cuspid to molar would be more natural. The manufacturer who will produce teeth void of this fault will find it to his advantage.

A New Way of Taking Out Teeth.—When an unfortunate (as sometimes happens) swallows some of his artificial teeth they no longer need be a source of danger to him. From the Massachusetts General Hospital an operation is reported by which a set of swallowed teeth were taken out from the patient's stomach, "through a transverse cut in the left side of the abdomen." The article had been swallowed a year and was simply killing the man by slow stages, as they blocked the passage of food to the stomach, and he was much emaciated. After this successful tooth-extracting, sufferers from swallowing other hard substances, or similar articles, may be enabled to resort to surgery at once, without waiting for the time when it is "the operation or the life."

Preliminary Qualifications of Dental Students—My experience has taught me that those who have become most proficient and accomplished as dental surgeons are those who had, previous to commencing the study of dentistry, a good common school education, and some knowledge of Latin and Greek, and who had received at least one year of private instruction in the office and laboratory of some good operator; and who besides these advantages possessed a *natural fitness* in being *able to use their hands*. I mean persons who possessed that manipulative power which is essential in all operations embraced in the entire line of dentistry both mechanical and operative in their different phases and departments.

I would advise that no student be received in a Dental College till he can show evidence of a fair education in the branches taught in our common schools, and of his having been under some good dental

operator for at least one year, the most of which should have been devoted to *Mechanical Dentistry* and the reading of *Chemistry, Anatomy and Physiology*, and two of the best text books such as *Harris' Principles and Practice of Dentistry*, and some work on *Mechanical Dentistry.—J. S. Knapp.*

Oxygen.—It is well known that when this agent is applied within an abscess, or in a suppurating pocket, effervescence occurs. There is some difference of opinion as to how this is caused. Some have said that the bubbles are caused by escaping oxygen; but this seems hardly satisfactory, for if this gas is set free by its affinity for oxidizable matter, does it not follow that it at once combines with the materials which take it from the hydrogen? Pus contains carbon, and when this is oxidized, carbonic oxid or carbonic acid results; and being gaseous, either one or both may cause the effervescence, and hence, though the oxygen thus escapes, taking part in the bubbling, yet it does not escape as oxygen.

When oxidation is desired as a local action, we know of no better or more convenient medicinal agent than the one under consideration. —*Geo. Watt.*

The American System of Dentistry is before us, or rather the first volume. It contains more than 1000 pages, admirably printed and bound, and in every way a credit to the publishers, Lea Brothers & Co., Philadelphia. It is edited by Wilber F. Litch, M. D., D. D. S. The plan followed is to assign to dentists of learning and experience special subjects, these in the aggregate to constitute a complete system of dentistry. We have spent many days in examining this first volume, and we are much pleased with it. It does not treat each branch so elaborately as to be tedious, and yet in a practical way it brings to view the most advanced teachings on every subject. Anatomy is generally a tedious study, but *Regional Anatomy* in this volume takes in minutely the region of the head in a masterly and interesting manner. Then follows *The Lymphatic Vessels of the Head and Neck; The Teeth of the Invertebrates; The Teeth of the Vertebrates; Embryology and Histology; General Pathology; Dental Caries; Pathology of the Dental Pulp; Diseases of the Dental Pulp and their Treatment; Diseases of the Peridental Membrane; Abrasion and Erosion of the Teeth;* concluding with Dr. W. D. Miller's papers sometime since published in the *Independent Practitioner*. The index is very faulty; for a book of reference it is not one quarter as minute as it should be. We shall look with interest for the second and third volumes which are promised in January and June next. Price per volume, $6.00, $7.00 and $8.00, according to binding.

For Our Patients.

SAM JONES TO WOMEN.

The Rev. Sam Jones preached a sermon to over one thousand women in Indianapolis, in which he said: "Never help the devil to lay your husband in a drunkard's grave. The hardest thing I can say, and I say it in all kindness, is that the biggest fool God ever looked at is a wife who stirs a toddy for her husband. Sisters, let me warn you by every drunken husband, father and son in the land, that he became so through taking drams, and many of them by drinking toddies stirred by their wives. You go home and empty out every one of those closets I'll tell you another thing there are plenty of women who drink lager beer. My, my, my! Did you hear what Brother Price said about beer the other day? He said that it agreed with the dutch stomach, but that it didn't agree with the human stomach. The idea of women drinking lager beer! Why, if you would take some of that stuff and put it in your hog-trough, and didn't sweeten it or anything, there isn't a poor, half-starved hog in the lot that would touch it. [Laughter.] If you did deceive some poor hog into drinking it, as soon as he got sober he would leave this town and you couldn't drive him back. I've heard women say that they drink beer for their health. When my wife and children can't live without drinking beer, I am ready to preach their funeral sermon. Do you hear that? I say the only hope of America to-day is in the fact that we have sober mothers and wives, and if the women should be debauched into drinking, like the men do, we would soon become a nation of helpless drunkards."

ABSENT-MINDED.

It is very awkward to be absent-minded. The story is told of a certain gentleman wno discovered this to his cost. It so happened, the other day, that the dining-room of the club which he frequented was quite full, when a man who chanced to know his particular failing came in quite hungry. The waiter told the new comer there was no room, at present. Spying his absent-minded acquaintance seated and calmly reading the newspaper, a brilliant idea struck the hungry man.

"Has Mr. A. dined yet?" he asked.

"No, sir," replied the waiter.

"Well never mind; take him a card, and tell him he has had his dinner."

The waiter hesitated a moment, and then went over to Mr. A. and handed him a card.

"What is this for?" quoth the poor fellow.

"For your dinner, sir."

"My dinner—ah! Have I really had it?"

"Yes, sir," replied the waiter, in complete innocence.

"Dear me; I had an idea that I was waiting for it. What a curious mistake!"

And, with a contemplative smile, Mr. A. sauntered out of the room, leaving his table for the use of the genius who had thus profited by his absent-mindedness.—*Office and Laboratory.*

Arsenic Dangerous for Sensitive Dentine.—Forty years ago I killed the pulps of four incisors by applying arsenic to deaden sensitive dentine. Twenty-five years ago I destroyed the pulp of a central incisor by placing arsenic in a small labial cavity no deeper than the thickness of the enamel. The first case was that of a boy 18 years of age. The latter, of a man 40 years of age. Since then I nave never applied arsenic except with the *desire* to kill the pulp.

St. Louis, Mo. HENRY S. CHASE.

REFLECTION IN HAVING A TOOTH-PULP EXTRACTED

HELEN E. STARRETT.

It was a quivering, shivering thing
That shrank from its environing,
Within whose tiny, fibrous cell
Did such a power of suffering dwell,—
Such vast capacity for pain
That it could craze the tortured brain;—
Could make life seem a demon's curse,
And darken all the universe.
And now it lies there cold and dead;
The wondrous prisoner, life, has fled;
Nor chill, nor fire, nor searching steel
Has any power to make it feel.

I wonder if this heart and brain,
Whose vast capacity for pain
Can make life seem a demon's curse
And darken all the universe,
And yet can know such blissful heights
Of happiness in love's delights,
Such joy in nature's beauteous life,
Such energies for conquering strife,
Are only the ephemeral shell
That holds a prisoner in its cell?
And when the heart and brain are still,
And know no more of good or ill,—
Beneath the skies lie cold and dead,—
Where will that passionate life have fled?
In all the universe, oh, where
Shall be that wondrous prisoner?

—*The Weekly Magazine.*

Editorial.

WHY? WHY? WHY?

Often, one of the faults of our popular teaching is that students are not more encouraged to ask and learn the *why* of assumed facts,—to examine and receive facts intelligently,—to actually doubt, and reason, and handle thoughtfully what is given them, before placing in the pigeon-holes of their memories.

A student about to graduate from one of our dental colleges said to us:

"It is strange how rapidly the blood flows to an inflamed part, producing swelling."

"Why do you believe there is an extra flow of blood to an inflamed part?" we asked.

"I guess it must be so," said he; "this is what we are taught in our books and by our teachers; I have really not stopt to ask why it is so, or to doubt its truthfulness."

"Yes," we answered, "this is the popular teaching, but it is not a fact. There is no more blood passing through a part when inflamed than when not inflamed; not so much, for the inflammatory condition obstructs its circulation."

"Why," said he, "there is certainly more blood *in* an inflamed part?"

"No; test it for yourself; cut into an inflamed muscle, and see how much less blood will flow from it, and how much more sluggishly it will come away, than when you cut into a similar muscle uninflamed."

"Then what produces the swelling?"

"The engorgement of the blood vessels by fibrin and other matter consequent on the disorganized state of the blood and breaking down of the fibers of the part. The process from health to inflammation is simple. Strike a muscle and see how white it becomes for an instant. This is because you have collapsed the blood vessels, and thus checked the circulation. But see how, in the next moment, the blood comes rushing back; then there is an unnatural redness. But this is not inflammation, nor will this produce it. It is even a good way to overcome it, if it exists; for a free circulation forced through an inflamed part carries with the blood the disintegrated tissue and the debris lodged on the inner coats of the blood vessels, thus insuring a free circulation. For this reason, one of the best ways to cure a felon on a finger, if treated before the blood vessels are actually disorganized into pus, is to wind a string quickly round and round the finger from

the hand up to the felon, and then to suddenly unwind. After two or three times in succession, this will force such a rapid and full circulation through the part that the felon disappears. If in the blow on a muscle there is sufficient force to produce bruising, and, after awhile, disintegration of a portion of the tissues, the blood is then obstructed, and congestion follows, and heat produced by the breaking down of the tissues; and if this is not checked, this congestion produces inflammation, and this inflammation ends in suppuration. During inflammation, instead of there being an increased amount of blood brought to the part, some of the previous flow through the part is obliged to find new channels around it by a process known as anastomosis."

"It does *seem* as though all this was true," said the student, "but while I am at college I must accept what I am taught; it would not do to set up my opinion, or seriously to controvert the opinions of teachers. I sometimes doubt the definition of inflammation, as much as I could now doubt its generally ascribed cause, condition, and course, but it would not do for me to say so; I should never pass in the world. We have some cranks in the school who are always doubting something, and questioning popular views, and even the direct teachings of the professors, and they are generally in hot water. In the final examination such persons are more frequently 'left' than successful; though they are often the smartest of the class."

When will our teachers learn that education is not "stuffing?" It is not enough to fill pupils with a multitude of theories and assumed facts, with "the generally received views and established practice of our authorities." Education must include culture, capacity for reasoning, and ability to use knowledge. Students are not parrots, to learn only to repeat what is taught them; they are *men*, to take teachings as food. They should have the liberty of rejecting what will not digest, or at least the privilege of putting such aside till they become stronger; and they must be given time to assimilate what is received. While there are many facts to be memorized, there are many theories to be sifted, and many assertions to be proven by logic, examination, or application. We have many dull scholars, and some very smart scholars, but all along the class, from the foot to the head, they must be encouraged to ask and learn the *why* of everything, if we would make intelligent, progressive, professional dentists.

With a compound oleate of soda and glycerin you can blow bubbles two feet in diameter. Such bubbles have been kept forty-eight hours under glass. The man who doesn't provide his children with a clay pipe and wash basin full of oleate and glycerin forthwith, fails in his duties as a father of a family.—*Artisan.*

ADVERSITY.

All circumstances have their lessons. Blest are those persons who can learn them. Yet, if we could have our own way, all would be ease, enjoyment, and prosperity. Sunshine is desirable; so are genial breezes and inviting arbors, and sweet lullabys; but clouds, too, have their uses, and rough winds and terrible storms, and wintery blasts. In spite of our best resolves, ease inclines to enervation, enjoyment to laxity, and prosperity to carelessness. Say what we will, and seek to avoid them as we may, hard work toughens the muscles and sharpens the skill; grief purifies the morals and brings us into a better life; adversity induces economy and produces self-examination. All these are harbingers of a glorious future, *if*, as good children, we learn our lessons, and *if*, as sensible men, we practice them. All things work together for good to the good,—all circumstances advantageous, all experiences desirable, all events profitable. To the evil-disposed these may be curses. There is not anything that can come to the good man till it first passes through the hand of his ***Father*** for inspection, approval, and final permit. If allowed to pass, whatever it is in the starting, it becomes a blessing on its arrival: though it comes as darkness, it turns to light; though it appears an evil, it proves a good; though it crushes, it wonderfully heals and prepares for future usefulness and pleasure. But to the evil-disposed and stubborn,—to the foolish and dull scholar,—it is not so. Mere money is not wealth. This often brings poverty,—the poverty of evil habits, an evil spirit, and contemptable selfishness. If the loss of the one will give in exchange for the others purity, sweetness, and usefulnes, we have gained largely.

Only a few of us learn wisdom from prosperity, and some of us learn nothing from adversity. When we are in the midst of trouble, specially if it is brought about by our own misconduct, we *think* if it was removed we would do much better; but many of us forget our lesson with the occasion that brings it. Some children need little punishment; when they do wrong a hint brings them right. Others need frequent chastisements, and even then they cannot be trusted far, —a few pennies turn their heads, a little flattery spoils their morals, and a short liberty terminates in license. Men are but children of a larger growth; some are very foolish children.

When an Indian has an arrow that dries crooked he soaks it in water and hangs it in a tree with a weight attached. It gradually straightens, and remains straight after that. Let us not complain, if those of us who get kinky while being prepared for life's work, shall have to be strung up with a weight attached, to straighten us out. And let us remember, the Indian keeps his arrow hanging in the tree for some time.

LADIES SMOKING.

"Did you see that lady smoking a cigar?" said my friend, as we passed a house of elegance.

"No," I replied; "I am glad I did not, if a lady could be found so vulgar."

"It is certainly exceedingly unbecoming," said he, "for though I smoke, I would disown a wife that did."

"Hie, hie! This is aristocracy in morals with a vengeance, and 'I' as the privileged autocrat."

"O, nonsense; of course I would not tolerate many things in my wife I can allow in my own habits. Men and women are made of different materials."

"Many become different, surely; and the important question is: How? Why? Why does a man allow himself to grow into habits which in his wife would seem intolerable and demoralizing?—grow into them till he tries ever so hard to make himself believe that he and his wife are made of different materials? And pray, how different?—one refined, the other coarse?—one pure, the other polluted?—one tending upward, the other downward? No, no; the moral status of men and women is the same, till character is changed by voluntary acts. The man who gives way to evils wants an excuse for indulging in them, instead of manfully abandoning them so as to rise up, up, up till he is side by side with his wife, or his sweet-heart."

"Look here; how would my wife look 'chawing a quid of tobacco?' and yet you and I have seen *gentlemen* do it till the nasty juice run down the corners of their mouths?"

"If a man could do such a thing and retain his character as a *gentleman*, why could not a woman do it and retain her character as a *lady?*—You sneer? I am glad of that, for it shows that clean, pure, noble women are a constant reproof to any man who cannot set by her side as her compeer. And now I want to venture to say that you saw no lady in that parlor smoking: it was a man."

"No, I am positive. But if it was a man; then, of course, it was all right. I have done the same thing in my parlor, and chewed the cud there too; but my! how it would look in my wife?"

To Cover Exposed Pulps before filling the tooth cavity many drop on the point of exposure a small part of a drop of a thick mixture of chalk and gum arabic solution. Perhaps a still better way is to carry this thick paste to the point of exposure on a tiny piece of paper. Then partly fill the tooth cavity with oxyphosphate, finishing with gold or alloy.

WISE MEN AND FOOLS.

Fools are happy beings, if nothing more; they have not the worry and fret and care of wise men,—not the labor of proving their assertions, not the necessity for looking into life's intricacies, not the bother or the pother of penetrating mysteries,—of being deep and profound and astute. Would you have a vessel give a good ring? It must be empty.

To be wise is often inconvenient; it sometimes deprives us of the enjoyment of being ignorant. Fools have no dread of food poisons; the wise man cannot eat till he has analyzed his milk, his butter, and the very bread the baker brings him,—and the more he analyzes the more adulterations he finds, till he would live without eating if he could. Fools drink heartily from the well and brook and even from the city faucet; the wise man must first count the animalcules through his microscope. Fools believe with the confidence of children, and are happy in their beliefs; the wise man is obliged to investigate the simplest proposition with all the exactness of logic, till he becomes a skeptic on every thing and "positive only that he is positive of nothing." Fools enjoy the sweets of life as they come, and find hearts to laugh at the bitter; the wise man is continually debating whether life is worth living.

A fool is a kind of necessity to make society tolerable; to have all men profoundly wise would make the atmosphere oppressive. The ridiculous sayings of a fool, now and then, if it is only to produce a laugh, is a relief to the weighty sayings of wise men. It is just fun to meet a fool we dare differ with, after a long diffidence of silence and silence of deference in the company of wise men. As a variety, at least, we prefer quarrelling with a fool we can abuse and kick about, than be everlastingly listening to wise men it is a crime to dispute. And then we do sometimes learn good things from a fool; and are we not often led into visionary vagaries by wise men? The fact is, reputed fools may have streaks of wisdom; and we know those who assume wisdom have streaks of foolishness,—in some the lean exceeds the fat.

O for men of good common sense? neither so foolish as to disgust, nor so brilliant as to dazzle; men of more simplicity than assumption, of more usefulness than gammon, of more right down hard work than erratic theories and visionary schemes. We should be willing to get rid of all our fools if with them we could lose all our excessively wise men. Fools who are the laughing stock of their neighbors are sometimes useful, and so may be men of vast profundity, but most of our successful workmen, merchants, statesmen, and generals are plain men. There is but little pomp and ceremony about our best lawyers and judges; and our greatest orators and leaders, in church and state, are "as one of us."

IS THE PROCESS OF DEATH NECESSARILY PAINFUL?

The dread of death is almost universal. Its agonies are depicted by moralists and physicists. That it is generally painful is undeniable; and perhaps increasingly so in proportion to intelligence and exalted organization.

But is this necessarily so? We think not. Pain is the result of those conflicts with physical, mental, moral, and spiritual laws which bring about *dis*-eased function, and this produces pain.

We do not think nature intended the process of death to be cruel. If the laws of his being were obeyed during life, man's death would be but the passing into a sleep that knows no waking—in this life; a beautiful sleep into a new life beyond.

It is the uncertainty of the future that constitutes most of the dread of death. Men suffer much more pain in acute sicknesses than in chronic, and much more while the system is near the standard of health than when nearing death. In all periods of life, physical pain is much less than mental. This is the reason man is so much more susceptible to both pleasure and pain than brutes. And as we descend the scale of brute creation there is less and less sensation, because less nerves, till finally we get where we are able to cut the organized mass into pieces without apparently giving pain. In man, if the mind during the article of death, is at peace, and the faith in joys beyond is unshaken, there is little pain, and that little is physical.

Saccharin.—This wonderful sweet, described in our miscellaneous department is 220 times sweeter than cane sugar; so that, though it is $10.00 a pound, its use is economical in adding to the sweetness of glucose, and for many other uses, specially in medicine. The extensive preparations for its manufacture will soon reduce its price, when we can all, at least, have a taste of this remarkable product of coal tar. A single tablespoonful will turn a half barrel of water into syrup; and what is quite as remarkable, it will not ferment, and it prevents anything else saturated with it from fermenting.

In Considering New Things we should beware of two dangers: avoiding them because they are new, and adopting them because of their novelties. We should be willing to spend much time and patience, and some money trying new things, and experimenting to produce them. If one in ten prove valuable we are well repaid for our investment in all. Yet, if we run after every thing that's novel, we shall be continually unsettled, often vexed. Let us use judgment more than impulse, discretion more than curiosity, and intelligent investigation more than a blind faith in the unknown.

TERMS REFERRING TO BONES.

If the following terms are committed to memory, they will often be serviceable. The description is similar with most anatomists.

The *proximal* surface of a bone is the end or surface next to the center of the body.

The *distal* end or surface is that fartherest from the center of the body.

If the extremity of a bone forms a simple rounded prominence, this is a *head.*

If it has a pair of these prominences, they are called *condyles.* In the occipital, and in the lower jaw, the simple articular eminence is a condyle.

The *neck* is the constriction just below the head, condyle, or other articular eminence.

A *process* in a bone is an elevation, projection, or prominence.

A *spinous process* in a bone is a prominence or elevation, and tapering.

The *tubercle* or tuberosity of a bone is an elevation or prominence extending some distance along the surface of a bone.

An aperture in a bone, or between several bones, is a *foramen.*

The attachment of muscles to the bones.—The use or the insertion of each of the muscles has its attachment to some bone. But how can the muscle take such a strong hold of the bone? If a close examination is made, it will be seen that the terminal fibers of the muscles seem to penetrate the bone. Perhaps it would be more proper to say, some of the unosified perforating fibers of the bone as they come to the surface unite with the terminal fibers of the muscles; this anastomosis or union of the two forms an extremely strong attachment. The cement of the bone in its early state also acts as a glue to the fibers of the muscles.

Deficient Strength of Rubber Plates is the last objection to them we have heard. We believe them the strongest plates made, and that without making them so clumsily thick as some are made. Of course it should be a good quality of rubber and manipulated with skill. We hear of "a shrinkage in rubber" that is considered objectionable. Here too is a new idea, and we believe as false as new. We have constructed rubber plates for twenty-five years, and never found this an objection to rubber. Gentlemen, if you can make your poison theory stick, stick to that; for it will bring the dimes, but don't try these new points of attack, for this will only weaken your crusade against rubber and make us suspicious of your poison theory.

HEART DISEASE.

Almost every day we hear of persons dying of "heart disease." In most cases, we may as well say "they died from want of breath." That men and women may have heart disease, as well as lung disease, or difficulty of any other organ, is true; but many deaths of "heart disease" should be attributed to most wanton improprieties, which overtax lungs and heart and the whole machinery. As we passed through a gate of the Broad Street Railway Station, at Philadelphia, the other day, a young man fell in the passage and died almost immediately. The doctor summoned pronounced the cause heart disease. A gentleman standing near said: "If you had seen him running, faster than our street car came, from Eighth street, to catch his train, you would say "he died from hurrying." There was probably no disease of the heart or of any other organ, but an overtaxing of all the organs. By this foolish desire to catch a train or to reach some point a little sooner than we can do it safely, some of us are frequently jeopardizing our health and perhaps our lives. If we behaved ourselves, and lived and acted in moderation, we should have less deaths from "heart disease."

Was the Abscess Cured?—A dentist says: "Six months ago a lady came to me, having a right superior lateral dead, much decayed, and discolored. The history of the case was, that the tooth had been filled several times; each filling being followed by an abscess opening in the roof of the mouth. The tooth (a mere shell) I filled with gutta-percha, as an experiment. The next morning she experienced so much pain that I removed the filling. The next evening she showed me an abscess in the roof of the mouth, the protrusion being almost as large as a walnut, and the tooth extremely loose. After the abscess had been opened, she suffered much pain, which an application of aconite and iodine (one part tincture of aconite to two parts of tincture of iodine), quickly removed. After the abscess had been cured, I excavated the tooth, cleaned the pulp-canal, and filled it with gold on a lining of oxyphosphate." We ask, was the abscess cured?

Nitrit of Amyl.—The following case, in which nitrit of amyl was used as an antidote to opium, will doubtless be considered sufficiently important to lead others to try the same treatment in desperate cases of opium poisoning. The case recorded is of a person who took two ounces of laudanum, and showed every symptom of opium poisoning—coma, small pulse, feeble and infrequent respiration (six to the minute), coldness and cyanosis. Belladonna proved useless, while inhalation of nitrit of amyl immediately improved and ultimately restored the patient.

Crystal Gold.—We do not think Dr. Dwinelle, or any one else, would intentionally take one iota from the honors of Dr. A. J. Watts as the originator of his excellent form of gold, now so extensively used by the dental profession. It is such an emphatic success, we do not wonder at his being jealous lest any one should rob him of his glory; we, therefore, in another column, give him space to set himself right. We have used this gold many years, and always bless the inventor as we fill a cavity or build out a contour with almost the ease we would use wax. Though, of course, proper instruments and manipulations are necessary.

The Deposit of Crystals in the fluid of Phosphate of Zinc is no detriment. It is caused by its being a trifle stronger than a saturated solution of the acid. Much better this than a solution only a very little weak; though, of course, the object of manufacturers is to have it of full strength, without overplus to cause the deposit of crystals.

Contour filling.—In the office of Dr. O. E. Peck, Bridgeton, N. J., we were interested, the other day, in seeing filled with crystal gold, a compound cavity in the upper second bicuspid in the mouth of a young lady. It was done skilfully and rapidly. But the feature that principally pleased us was the special care to contour its proximal wall so that only a well polished gold surface should nuckle against the adjoining tooth, and that near its grinding surface to prevent future decay. This contouring was much facilitated by a matrix of thin silver plate, and Perry's two bar separator. We think the silver is better than thin steel for the matrix, for it is easily shaped to the tooth to be filled and remains of this shape. Perry's separator does not hide the cavity to be filled as much as some others in use.

Waiting for the swelling to go down in abscessed teeth before extracting is an old advice, and as foolish and unnecessary as old. The tooth will come easier while the activity of the abscess makes it loose, and much pain is avoided, and no ill consequences can result.

Dr. Albert L. Wright, Woodbury, Conn., was instantly killed at a rail-road crossing near his office, October 2nd last. How little we know of even the very near future, and how wise therefore, that we live as we would die. Dr. A. C. Peck, of the same village, writes us that Dr. Wright was an exemplary christian, held in high esteem by all who knew him. His wife and daughter were so prostrated by the shock they could not attend the funeral services. To the whole community it was an occasion of special solemnity.

Miscellaneous.

SACCHARIN AND ITS INVENTOR.

A representative of the *American Analyst* called on Dr. Constantine Fahlberg, the inventor or discoverer of saccharin, the new coal tar sugar, and had a long talk with him about his new discovery. The doctor is a tall, well built, handsome German-American of about thirty-eight years of age. He speaks the modern languages fluently, and despite the celebrity that has so suddenly fallen on him, is quite diffident and reserved.

"How did I discover saccharin?" he said. "Well, it was partly by accident and partly by study. I had worked a long time on the compound radicals and substitution products of coal tar, and had made a number of scientific discoveries, that are, so far as I know, of no commercial value. One evening I was so interested in my laboratory that I forgot about my supper till quite late, and then rushed off for a meal without stopping to wash my hands. I sat down, broke a piece of bread, and put it to my lips. It tasted unspeakably sweet. I did not ask why it was so, probably because I thought it was some cake or sweetmeat. I rinsed my mouth with water, and dried my moustache with my napkin, when, to my surprise the napkin tasted sweeter than the bread. Then I was puzzled. I again raised my goblet, and, as fortune would have it, applied my mouth where my fingers had touched it before. The water seemd sirup. It flashed on me that I was the cause of the singular universal sweetness, and I accordingly tasted the end of my thum, and found it surpassed any confectionery I had ever eaten. I saw the whole thing at once. I had discovered some coal tar substance which out-sugared sugar. I dropped my dinner, and ran back to the labratory. There, in my excitement, I tasted the contents of every beaker and evaporing dish on the table. Luckily for me, none contained any corrosive or poisonous liquid.

"One of them contained an impure solution of saccharin. On this I worked then for weeks and months till I had determined its chemical composition, its characteristics and reactions, and the best modes of making it, scientifically and commercially.

When I first published my researches, some people laughed as if it were a scientific joke, others, of a more skeptical turn, doubted the discovery and the discoverer, and still others proclaimed the work as being of no practical value.

"But when the public first saw saccharin, everything changed. The entire press, European and American, described me and my sugar in a way that may have been edifying, but was simply amusing to me. And then came letters. My mail has run as high as sixty a day. People wanting samples of saccharin, my autograph, or my opinion on chemical problems, desiring to become my partner, to buy my discovery, to be my agent, to enter my labratory, and the like.

"What have I done? I have started a company in Germany to manufacture saccharin, with a capital of 2,000,000 marks. They are already at work, and are now producing the new sugar. It costs, or rather we sell it, between $10 and $12 per pound, but will reduce these figures considerably before a year has passed. I would rather have

started in this country, which is my home, but the high price of skilled labor, and the high tariff on the crude materials (fine chemicals) of which saccharin is made, deterred me and my friends from so doing. If applied chemistry continues progressing as it has done in the past decade, we shall open branch works here within the next five years.

Saccharin is proving a wonderful success. It is used already in many ways. Prof. Leyden, of Berlin, recommended it to sweeten fine wafers and other foods for invalids, and wrote a formula for it in such cases. This is used by bakers and confectioners, and more specially by Mannl & Co., the great wafer manufacturers of Carlsbad, Bohemia. It is also employed by the makers of glucose and beet sugar. These are inferior in sweetness to cane sugar, but superior in digestibility and healthfulness. The addition of a fraction of saccharin makes them the equals of the finest cane sugar in the market. Saccharin is so sweet that two or three teaspoonfuls converts a barrel of water into sirup. A small wafer of it converts the bitterest quinine solution or acid drink into a regular molasses. It will therefore be invaluable in disguising and destroying all the bitter and sour tastes in medicine without changing the character or action of the drugs.

Saccharin does not decay, mold, or ferment, neither is it attacked by bacteria. It has no injurious effect; what effect has been noticed is rather beneficial. This immunity from decay will render it of great utility in pickling and preserving delicate vegetables and meats. Where sugar is used as a flavor and not as a food, there, I think, it is bound to be replaced by saccharin; where, as a food and flavor combined, it will not be. In the future the new sugar will be used by druggists, physicians, bakers, confectioners, candy makers, preserve and pickle makers, liquor distillers, wine makers, and dealers in bottlers' supplies.

The Natural Gas.—Many theories of the formation of natural gas have often been proposed; but it is none the less interesting to quote here that suggested by Professor Wurtz nearly seventeen years ago in these words: "As to my views of the mode of the formation of gas that exists now in such enormous compression in the different strata, I ask first, What is this gas chemically? Always essentially, from whatever horizon obtained, it is marsh gas, that hydrocarbon of all others which contains the most hydrogen and the least carbon; the compound which naturally and necessarily forms the final residue of the abstraction of carbon from organic matter by a powerful oxidizing agent, since in nature we scarce find elementary hydrogen as such a residue. Now, what oxidizing agents are there, or, rather, what have there been in all these rocks that could effect such a combustion? I reply, oxides of iron, now represented in these rocks by iron sulphides, showing the iron oxides to have passed through the forms of sulphates;" an action similar to that "evolution of marsh gas going on in every stagnant pool, loaded with vegetable matter, and blackened by sulphide of iron, which is occupied in conveying the oxygen of the water to the carbon of the mud."

The development of the natural gas industry during the past two years has been marvelous; yet it is almost as extraordinary that it required fifteen years after Professor Wurtz's prediction to awaken even enterprising men to what they all now know to be so incalculably important.—*Engineering and Mining Journal.*

A, WHO holds a large reed or pipe, blows a soap bubble, say five or six inches in diameter; B, who has a smaller pipe, and is smoking a cigar, blows a bubble one-third or half as large as A's, filling it with smoke. Before the bubbles are shaken off they are pressed together until slightly flattened at the point of contact. In a second or two the smoke from the smaller will spring into the large bubble and remain. The smaller bubble will disappear. There is no change in size, of the surviving bubble. What drives the smoke into the larger bubbbe? how is the place through which it passes healed? and why does not the bubble increase in size?—*Artisan.*

Pasteur's Great Discovery.—The *Tribune's* London cable special says: The English Scientific Commission appointed to inquire into Pasteur's process has completed an elaborate investigation and is preparing a report which will affirm the efficacy of his method as a cure for hydrophobia, and will rank it among the chief scientific discoveries of the century.

For Warts and Corns.—For warts, corns and other indurations of the cuticle, nothing acts more satisfactorily than a mixture of equal parts of tincture of iodin and glacial acetic acid, applied in repeated layers with a brush, night and morning.

A man moving into a new house, and being pesterd with cockroaches, claims to have rid himself of them by feeding them cucumber peelings. He says that the third night the roaches disappeard, and have not since been seen.

The yellow stain made by the oil used on sewing machines can be removed, if before washing in soap suds, you rub the spot carefully with a bit of cloth wet in ammonia.

Impervious Corks.—Corks may be made impervious by soaking several hours in solution ½ ℥ glue or gelatin, in ¾ ℥ glycerin, and 1 pint water heated to 50°c. Such corks are rendered proof against acids and chemicals by diping after thoroly dry, for 10 or 15 minutes into melted mixture of 4 parts parafin to 1 part vasalin.

To make Corks impervious.—Corks may be made ether-tight by coating them with a solution prepared from 4 parts of gelatin, 52 parts of boiling water, and 1 part of ammonium bichromate (added to the filtered gelatin solution) and then exposing them for a few days to sun light. Prepared in this way, corks will prevent the evaporation of any of the volatile fluids.—*Dental Register.*

A bronze color for iron work may be made by painting the iron with a thin paint near the color of the desired bronze, and when nearly dry brush the surface lightly with the bronze on a piece of fur.

We can prove with mathematical certainty that as much flour as can lie on the point of a table knife is more nutritious than a quart of beer.—*Baron Leibig.*